Service Manual



PUMA SX 2000

Designed by Mario Jurik

1.0 REPAIR INSTRUCTIONS

1.1 GENERAL CLEANING

Remove the machine shell and clean carefully with compressed air.

1.2 MACHINE: VISUAL INSPECTION

1. Check the general conditions of the electronic circuit ref. 1, particularly the varistor (fig. 1) if it presents bursting marks.

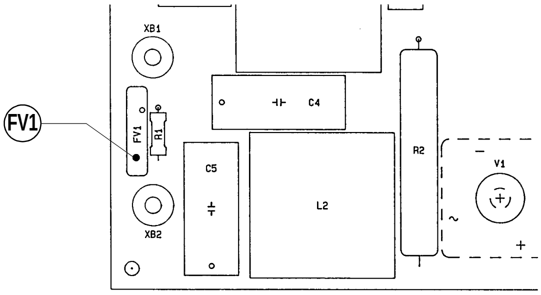


FIG. 1 - C.E. RIF. 3 MOD. HF348

- the state of the levelling condensers (fig. 2): check if there are swellings or breaks on the container

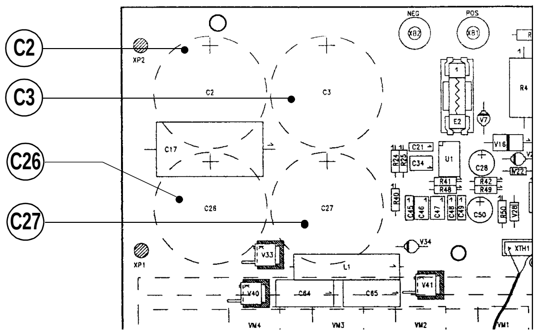


FIG. 2 - C.E. RIF. 1 MOD. CE22542

- la presenza di crepe o rotture sulle saldature dei trasformatori T1 e T4
- the presence of cracks or breaks on the welds of the transformers T1 and T4
- check for the presence of burned tracks or electric discharge marks on the printed circuit. In case of faults replace always the electronic circuit ref. 1

2. Check, on all the harnesses, the insulation of the cables and the state at the connection points.

1.3 CHECK OF THE MAIN COMPONENTS WITH TESTER (OHMMETER) ON THE CIRCUIT REF. 1

1. Check for the presence of short circuits on the rectifier bridge and the correct value of the power resistance (fig. 3)

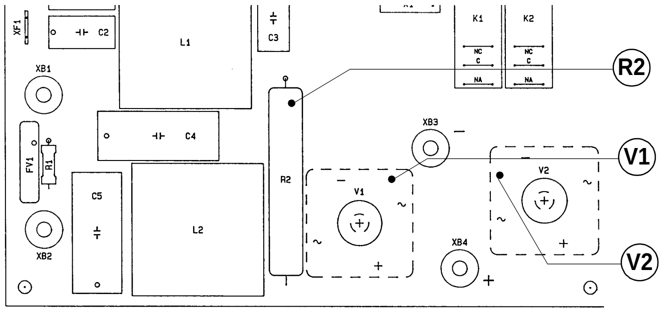


FIG. 3 - C.E. RIF. 3 MOD. HF348

2. Mosfet of the primary circuit and diodes of recycle: test points 1-2, 1-2, 2-3 of components A and B; points 1-2 of components C and D (fig. 4).

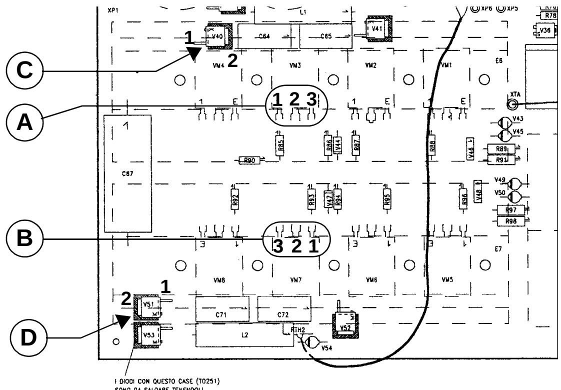


FIG. 4 - C.E. RIF. 1 MOD. CE22541

3. Diodes of the secondary circuit: check points 1-K of components E-F (fig. 5)

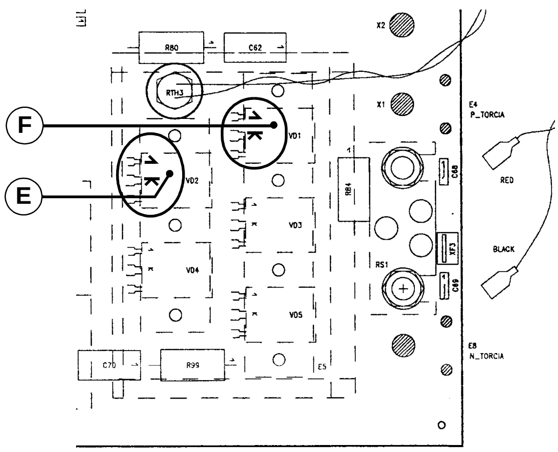


FIG. 5 - C.E. RIF. 1 MOD. CE22541

- If there are short circuits or faults during these tests, replace the electronic circuit.

1.4 CHECK OF GENERATOR OPERATION WITH OSCILLOSCOPE AND VOLTMETER

1. Connect a regulated power supply between TP1 (+ 15 Vdc) and TP2 (GND), short-circuit between TP1 and point A (fig. 6); set the oscilloscope on a time base of 5 uS and a range of 0.5 V/Div with probe x10 and verify:
   - the presence between points: 3 (GND) - 1

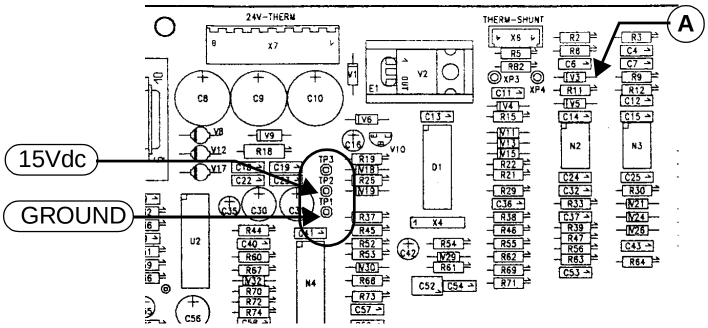


FIG. 6 - RIF. 1 MOD. CE22541

(probe) (fig. 4) of the waveform shown in fig. 7: if the waveform differs from the one in the figure or there is no wave form, the electronic circuit is broken.

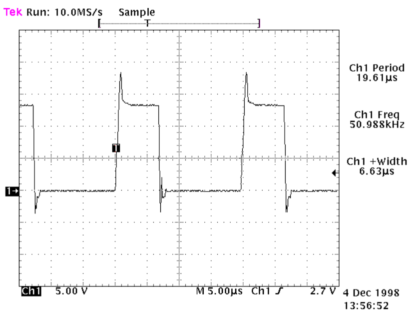


FIG. 7

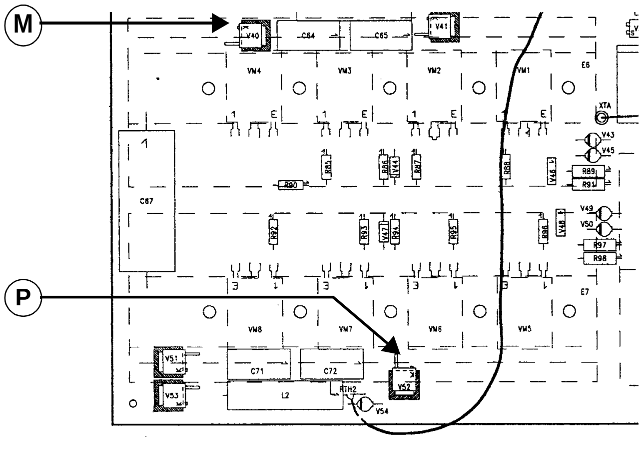


FIG. 8 - RIF. 01 MOD. CE22541

2. Disconnect the feeder and remove the short circuit, set the oscilloscope with a range of 1V/Div and connect the probe X100 between points M (GND) and P (Probe) (fig. 8); connect the machine to the power supply, switch it on:
   - the motor fan starts up, and after approx. 2 seconds a wave will appear as in fig. 9.

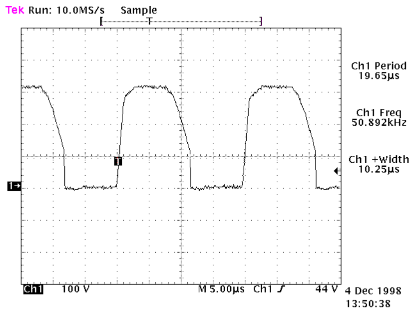


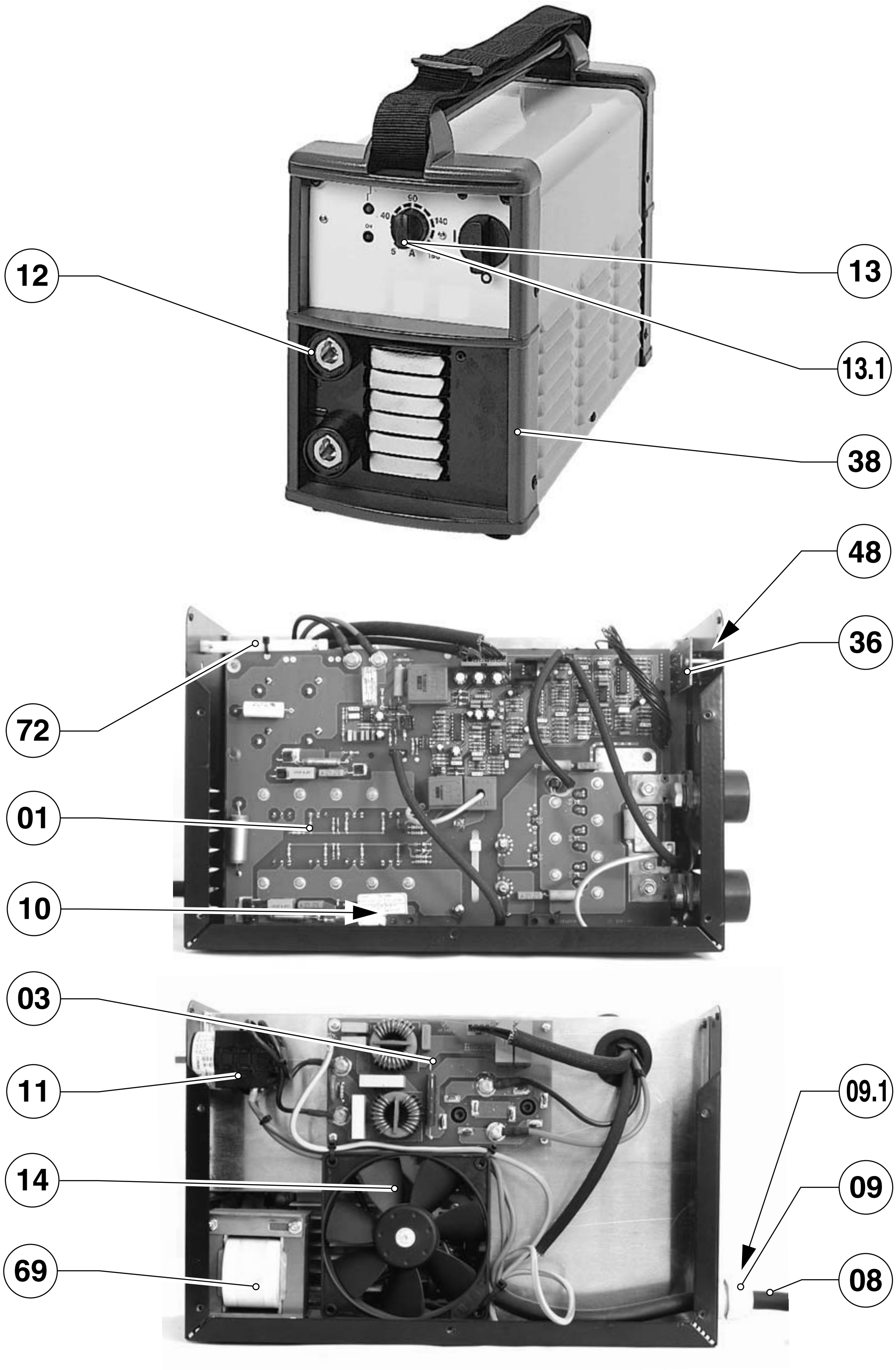
FIG. 9

   - check with a voltmeter that the output voltage is approx. 60Vdc (see test specification point 2).
   - If the wave form does not appear or the output voltage is not correct, replace the electronic circuit ref. 1
3. If there is not a correct current regulation replace the circuit ref. 36; if the fault appears again, replace the circuit ref. 1
   Carry out the final test after the repair.

2.0 FINAL TEST

1. Carry out the safety test according to our operative instruction N. SLL12, before proceeding act as follows:
   - insert a insulating thickness to avoid discharges or short circuits between the electronic boards (ref. 3) and their supporting turrets.

SPARE PARTS LIST - PIÈCES DÉTACHÉES - LISTA DE LAS PIEZAS DE RECAMBIO - LISTA PEZZI DI RICAMBIO
ERSATZTEILLISTE - PEÇAS SOBRESSELENTES - RESERVDELAR - WISSELSTUKKEN - LISTA PIESE COMPONENTE -
LISTA CZĘŚCI ZAMIENNYCH - ΚΑΤΑΛΟΓΟΣ ΑΝΤΑΛΛΑΚΤΙΚΩΝ - ПЕРЕЧЕНЬ ЗАПАСНЫХ ЧАСТЕЙ

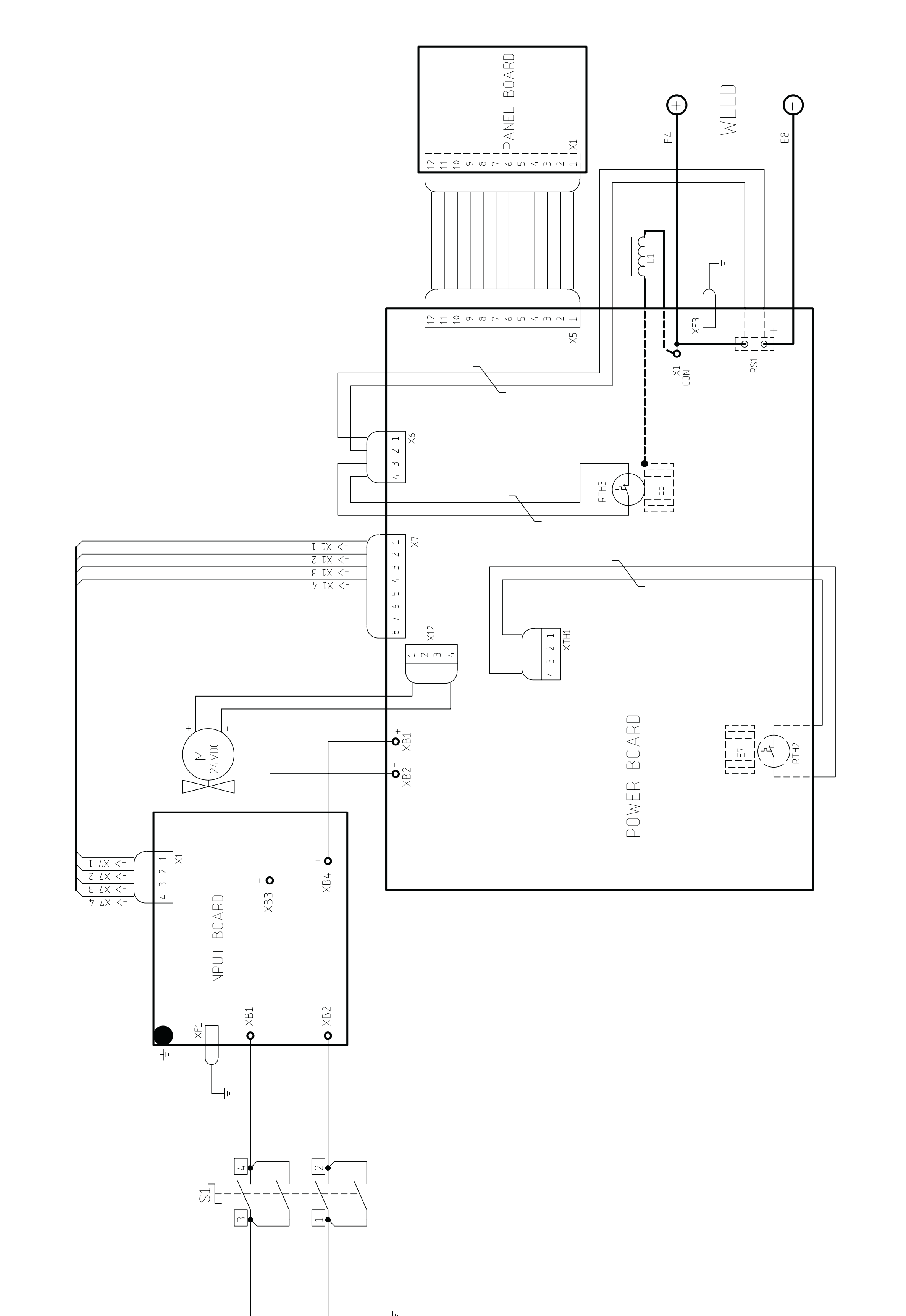


SPARE PARTS LIST - PIÈCES DÉTACHÉES - LISTA DE LAS PIEZAS DE RECAMBIO - LISTA PEZZI DI RICAMBIO ERSATZTEILLISTE - PEÇAS SOBRESSELENTES - RESERVDELAR - WISSELSTUKKEN - LISTA PIESE COMPONENTE - LISTA CZĘŚCI ZAMIENNYCH - ΚΑΤΑΛΟΓΟΣ ΑΝΤΑΛΛΑΚΤΙΚΩΝ - ПЕРЕЧЕНЬ ЗАПАСНЫХ ЧАСТЕЙ

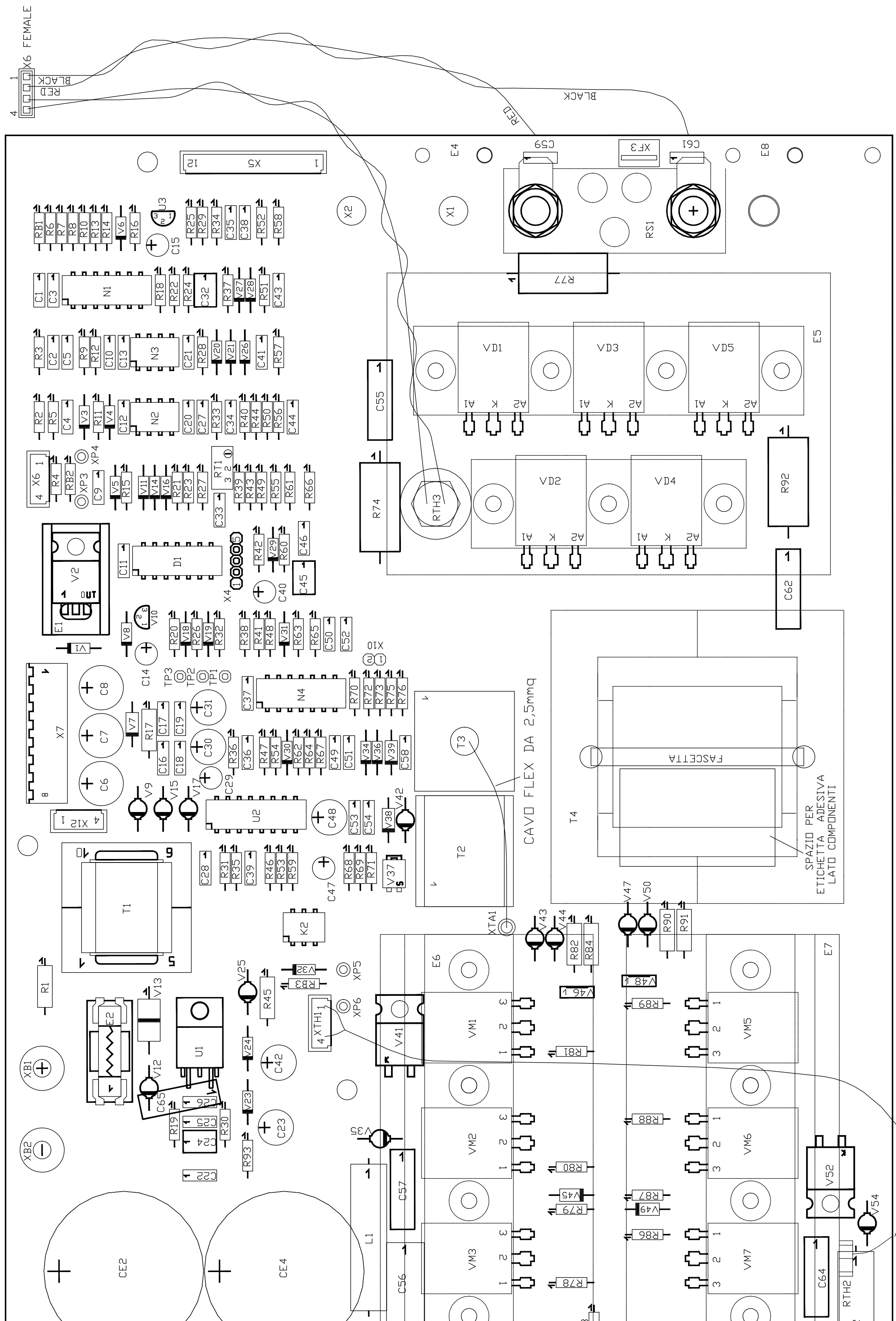
R.	CODE	DESCRIPTION	DESCRIPTION	DESCRIPCIÓN
01	W000232542	CIRCUIT BOARD CE 22541	CIRCUIT ÉLECTRONUQUE CE 22541	CIRCUITO ELECTRÓNICO CE 22541
03	W000232538	CIRCUIT BOARD HF 348	CIRCUIT ÉLECTRONUQUE HF 348	CIRCUITO ELECTRÓNICO HF 348
08	W000050196	POWER CABLE	CÂBLE ALIMENTATION	CABLE DE ALIMENTACIÓN
09	W000227612	CABLE CLAMP	SERRE-FIL	PRENSACABLE
09.1	W000227620	NYLON NUT	ÉCROU NYLON	TUERCA DE NYLON
10	W000233525	SECURING BLOCK	BLOC DE FIXATION	BLOQUEO DE FIJACIÓN
11	W000050197	SWITCH	INTERRTUPTEUR	INTERRUPTOR
12	W000231161	OUTLET CONNECTOR	RACCORD SORTIE	RACOR DE SALIDA
13	W000227980	KNOB	POIGNÉE	PERILLA
13.1	W000262748	HOOD	CAPUCHON	CAPUCHÓN
14	W000227820	FAN UNIT	MOTOVENTILATEUR	MOTOR DEL VENTILADOR
36	W000232515	CIRCUIT BOARD TV 330	CIRCUIT ÉLECTRONUQUE TV 330	CIRCUITO ELECTRÓNICO TV 330
38	W000262752	PLASTIC TRIM	PROFIL ARÊTE	PROFIL ÂRETE
48	W000050179	PIN FOR TRIMMER	ARBRE POUR TRIMMER	EJE DEL TRIMMER
69	W000050201	CHOKE ASSEMBLY	IMPEDANZ	IMPEDANCIA
72	W000233767	SUPPORT	SUPPORT	SUPORTE

R.	CODE	DESCRIZIONE	BESCHREIBUNG	DESCRIÇAO
01	W000232542	CIRCUITO ELETTRONICO CE 22541	ELEKTRONISCHE SCHALTUNG CE 22541	CIRCUITO ELECTRÓNICO CE 22541
03	W000232538	CIRCUITO ELETTRONICO HF 348	ELEKTRONISCHE SCHALTUNG HF 348	CIRCUITO ELECTRÓNICO HF 348
08	W000050196	CAVO ALIMENTAZIONE	SPEISEKABEL	CABO DE ALIMENTAÇAO
09	W000227612	PRESSACAVO	KABLEKLEMME	GRAMPO DO CABO
09.1	W000227620	DADO NYLON	NYLON-MUTTER	PORCA EM NYLON
10	W000233525	BLOCCHETTO FISSAGGIO	BEFESTIGUNGSBLOCK	BLOCO DE FIXAÇAO
11	W000050197	INTERRUTTORE	SCHALTER	INTERRUPTOR
12	W000231161	RACCORDO USCITA	AUSGANGSANSCHLUß	UNIÃO DE SAÍDA
13	W000227980	MANOPOLA	DREHKNOPF	BOTÃO
13.1	W000262748	CAPPUCCIO	KAPPE	TAMPA
14	W000227820	MOTOVENTILATORE	MOTORVENTILATOR	VENTILADOR
36	W000232515	CIRCUITO ELETTRONICO TV 330	ELEKTRONISCHE SCHALTUNG TV 330	CIRCUITO ELECTRÓNICO TV 330
38	W000262752	PROFILO CORNICE	RAHMENPROFIL	MOLDURA
48	W000050179	ALBERINO PER TRIMMER	WELLE FÜR TRIMMER	EIXO PARA TEMPORIZADOR
69	W000050201	GRUPPO IMPEDENZA	IMPEDANZ	GRUPO IMPEDÂNCIA
72	W000233767	SUPPORTO SCHEDA	AUFHANGUNG	SUPORTE

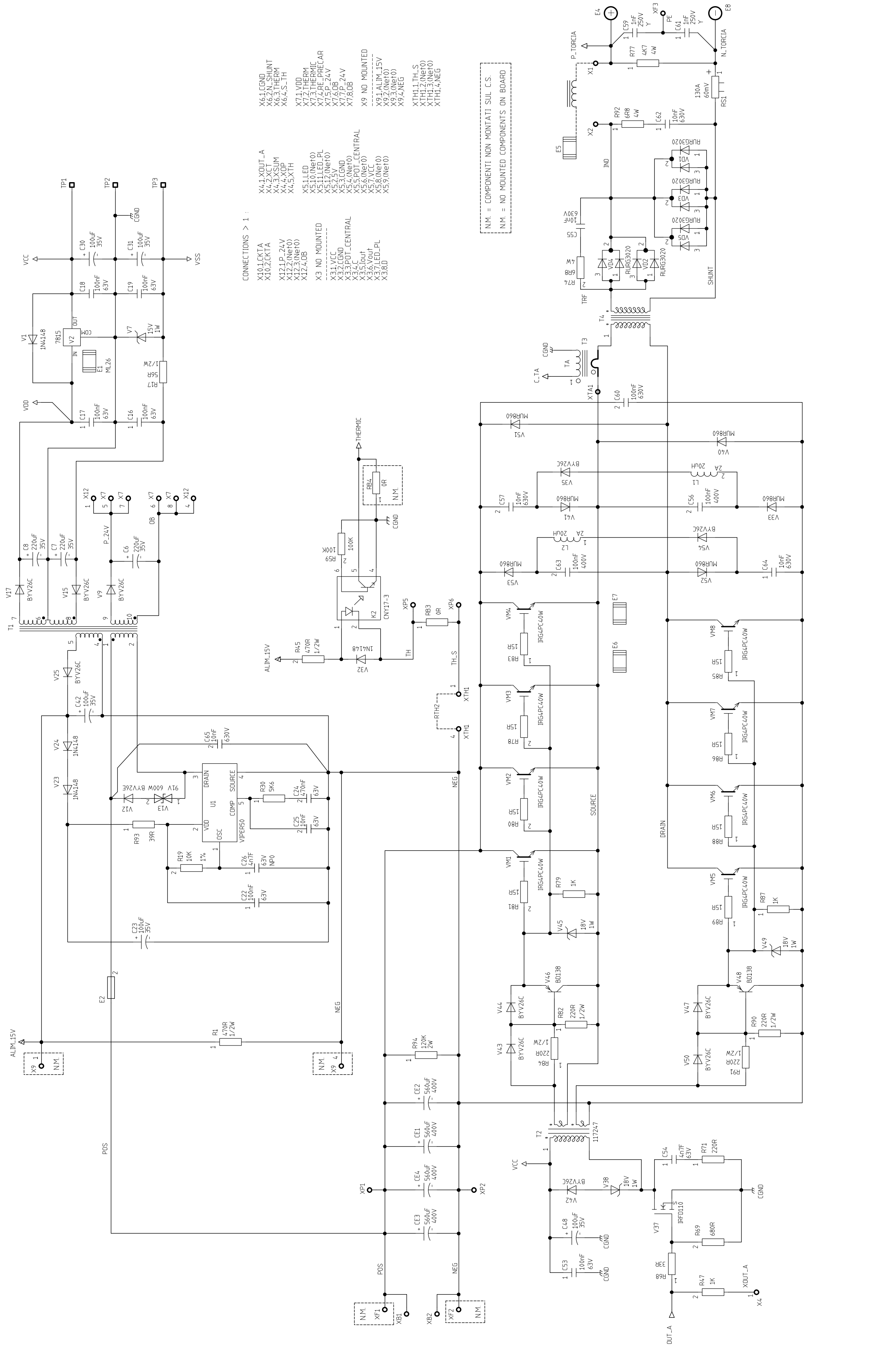
WIRING DIAGRAM - SCHEMA ELECTRIQUE - ESQUEMA ELECTRICO - SCHEMA ELETTRICO
STROMLAUFPLAN - ESQUEMAS ELÈCTRICOS - ELSCHEMOR - ELEKTRISCHE SCHEMA'S - SCHEMA ELECTRICA
SCHEMAT ELEKTRYCZNY - ΗΛΕΚΤΡΙΚΟ ΔΙΑΓΡΑΜΜΑ - ЭЛЕКТРИЧЕСКАЯ СХЕМА



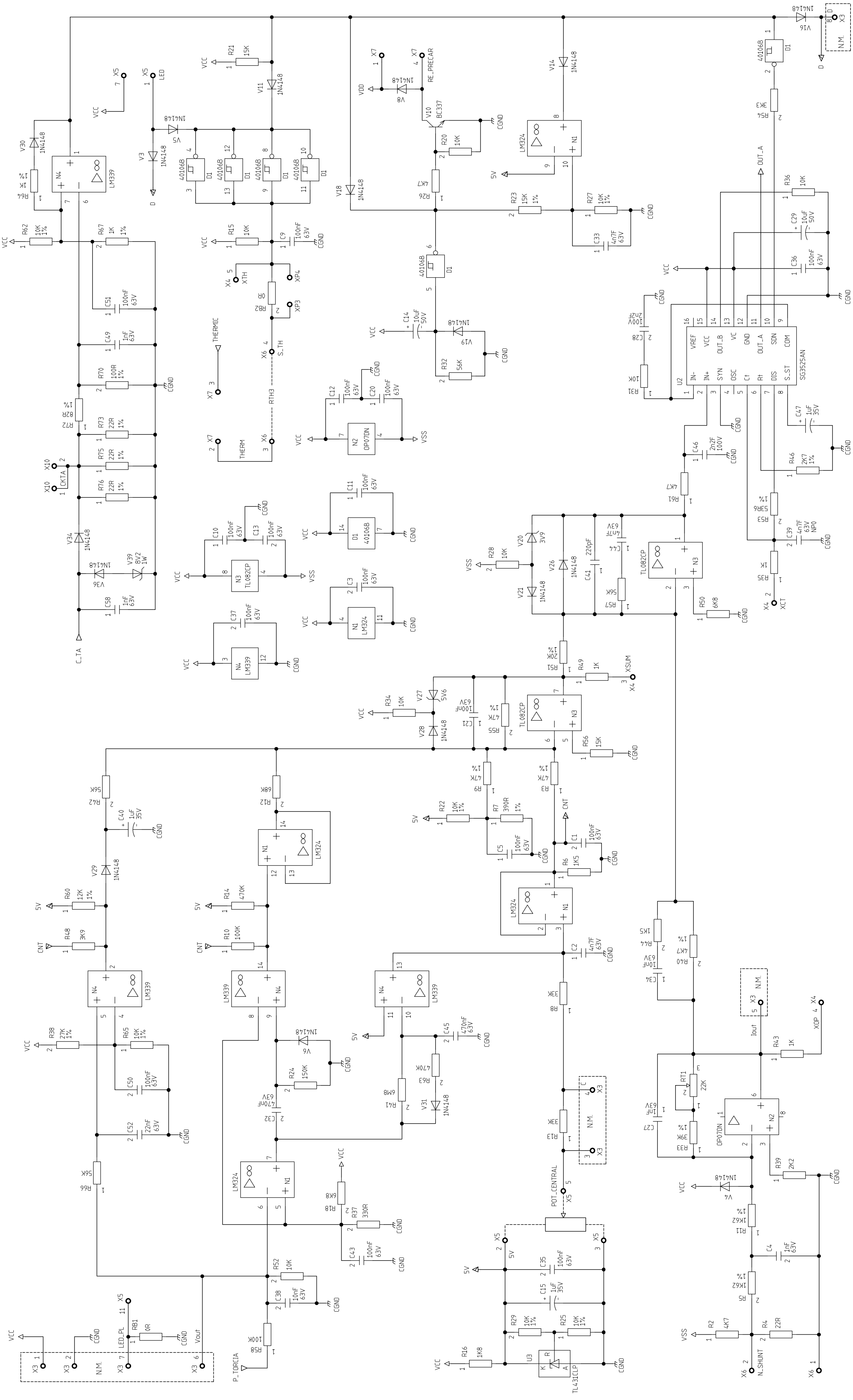
CIRCUIT BOARD CE 22541



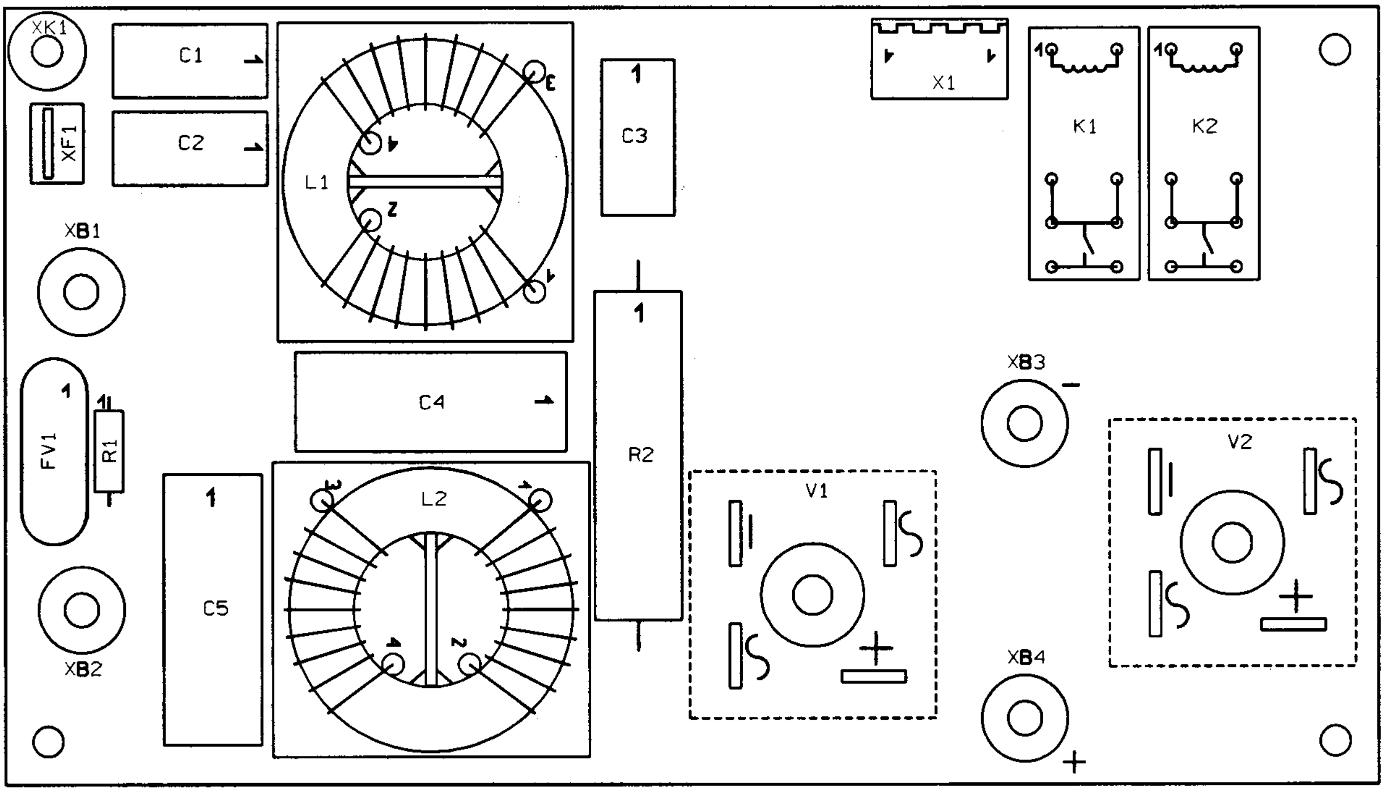
ELECTRONIC CIRCUIT BOARD CE 22541 page 1of2

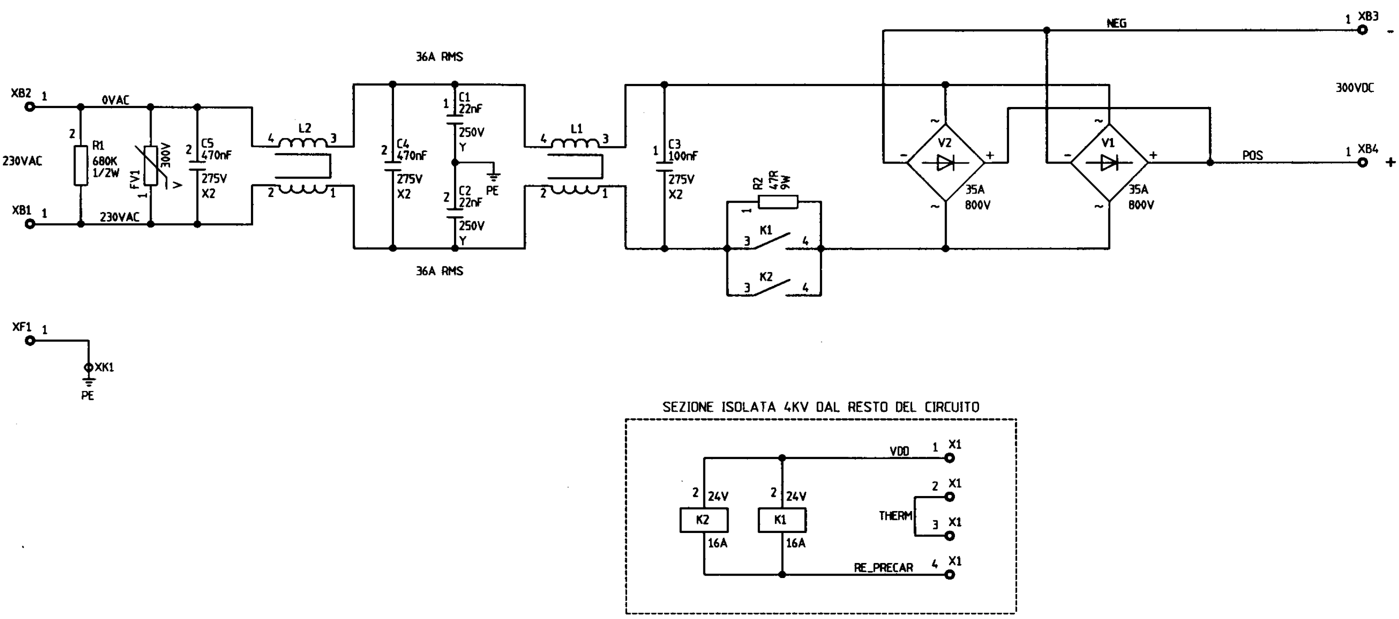


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CIRCUIT BOARD CE 22533





CIRCUIT BOARD CE 22473

